Revue suisse Zool. | Tome 86 | Fasc. 1 | p. 69-75 | Genève, mars 1979

Redescription of *Echinocotyle multiglandularis* (Baczyńska, 1914) (Cestoda, Hymenolepididae)

by

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With 13 figures and 1 plate

Abstract

On the basis of the original material of types and cotypes of *E. multiglandularis* a redescription with some corrections of the first description has been made: the ten rostellar hooks are 36 µm long and not 28.6 µm; cirrus naked; the evaginated external accessory sac is armed with hair-like dense spines erroneously taken by Baczyńska as the armature of the cirrus. The cirrus pouch passes dorsal to the poral longitudinal excretory canal and not between the dorsal and ventral ones. The ovary consists of three lobes. The spines, 10 µm in length at the bottom of the genital atrium, surround the cirrus and vaginal pore, not the accessory sac.

Echinocotyle multiglandularis (Baczyńska, 1914)

The exact determination of *Echinocotyle multiglandularis* (Baczyńska, 1914), seems unuseful because of some mistakes in the first description of Baczyńska 1914. Consequently, in this paper, the status of the species is reexamined.

The material consists of ten preparations from the collection of the Zoological Institute of the University of Neuchâtel, actually deposited in the Museum of Geneva:

− 6 from the Cairo (Egypt) collection No. 85 of Fuhrmann (Looss ?) from *Larus fuscus* determined by Baczyńska: 111/54, 111/63, 111/64 and 116/6 representing fragments of strobilae, 111/65 with transversal and longitudinal sections and 111/53 with scolex fixed without staining;

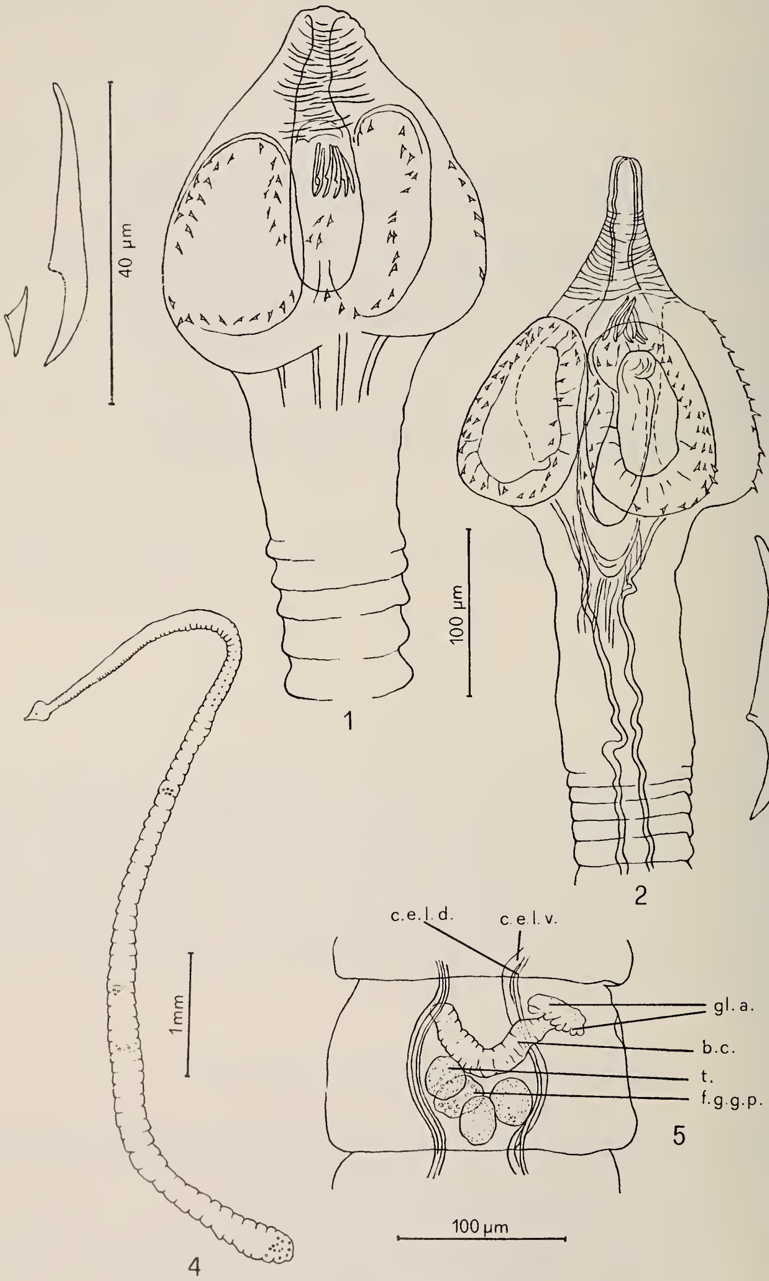

FIG. 1-5.

Echinocotyle multiglandularis (Baczyńska, 1914): 1, scolex with retracted rostellum; on side rostellar and sucker hooks, from *Larus canus*, Cairo, cat. No. 111/53; 2, scolex, from *Larus cirrocephalus*, Lake Edward, cat. No. 116/5, specimen "A"; 3, rostellar hook from *Larus cirrocephalus*, cat. No. 116/9; 4, external view of an entire specimen "A" with scolex; 5, "male" proglottid with female genital glands primordia, specimen "A".

– 4 from the Lake Edward (Africa, between Zaire and Uganda) collection No. 138 of 10.05.1958 recolted from *Larus cirrocephalus* and determined by J. G. Baer (unpublished): 116/5 with 8 total tapeworms including one with scolex, 116/7 with longitudinal sections, 116/8 with transversal sections and 116/9 with separated rostellar hooks.

Morphology (data of Baczyńska 1914, are given in brackets).—The longest and single entire specimen “A” fixed and stained without mature oncospheres (from *Larus cirrocephalus* cat. No. 116/5) is 8 mm long (7 mm) and 0,295 mm wide (0,28 mm) (fig. 4). It consists of 109 proglottids (further description is based on the same specimen “A”, but some morphological details have been observed and described from other specimens too). Scolex with retracted rostelum (fig. 2) 180 μm wide (150 μm). The other scolex from material described by Baczyńska (111/53) fixed without staining is 193 μm wide (fig. 1). The rostellar hooks of the “diorchis” type are 36 μm long (28,6 μm). It has to be emphasized that the very important morphometrical feature has been evidently measured erroneously by Baczyńska. The bottom of the rostellar pouch is about 40 μm behind the posterior margin of the suckers (fig. 2). This feature is not visible in the unstained preparation (fig. 1). Four muscular suckers with not very distinctly formed inner holes are slightly oval, a little enlarged posteriorly 70-75 × 115-120 μm (104 μm in diameter) and armed with numerous hooks about 9 μm (5 μm) long and arranged in two to four longitudinal rows. Their exact number is difficult to determine, because they easily fall off. The neck is 75 μm wide (91 μm) and 150 μm long.

The male genital system.—It appears in the 28th proglottid about 140 μm wide under the form of cirrus pouch primordium, in the 50th proglottid about 150 μm wide under the form of three testes primordia. Testes irregularly spherical or oval are well developed in the 66th proglottid about 175 μm wide (fig. 5) and measure 20-30 μm in diameter. Their maximal diameter in hermaphroditic proglottids is 38-50 μm (67 μm) (fig. 6). In more extended proglottids they are 30-40 × 40-60 μm (fig. 7). Testes always arranged in a triangle lie in the posterior part of the middle field of the proglottid. The biggest antiporal testis is situated slightly anteriorly. The testes disappear between the 83-87th proglottid. The vas deferens enlarges into transversaly oval external seminal vesicle situated dorsaly to the cirrus pouch and anteriorly to the middle and antiporal testes. Its maximal dimensions are 40 × 110 μm (52 μm). Cirrus pouch elongated, weakly muscled, 30-40 × 120-190 μm (156-195 μm long) crosses the antiporal excretory canals from the ventral side and sometimes reaches the antiporal margin of the proglottid (fig. 7). The poral, narrower part of the cirrus pouch crosses the poral longitudinal excretory canals from the dorsal side and never passes between the excretory canals as has been observed by Baczyńska. The internal seminal vesicle occupies almost entirely the inner space of the cirrus pouch. The unarmed cirrus when totally protruded about 50 μm long consists of a basal cylindrical part about 8 μm in diameter, its middle part is a little larger and measures about 10 μm when the free distal end becomes gradually narrower, reaching about 3 μm in diameter (fig. 10; little spines covering the cirrus in the opinion of Baczyńska do not belong to this copulatory organ, but to sacculus accessorius). The male and female genital pores lie at the bottom of genital atrium surrounded by a crown of radial disposed spines reaching about 10 μm in length. The median parts of these spines are slightly bent (fig. 10, 11). This armature of the genital atrium appears in the 70th proglottid together with the sacculus accessorius externus. The later lies dorsal to the cirrus pouch, is fairly strongly muscled, with radial and circular muscles. It is 14-25 μm thick and and 25-48 μm long (33 μm) when invaginated. The evaginated distal part of the accessory sac is 20-26 μm long and 7-10 μm wide, densely covered by fine hair-like, short spines (Baczyńska may have confused it with

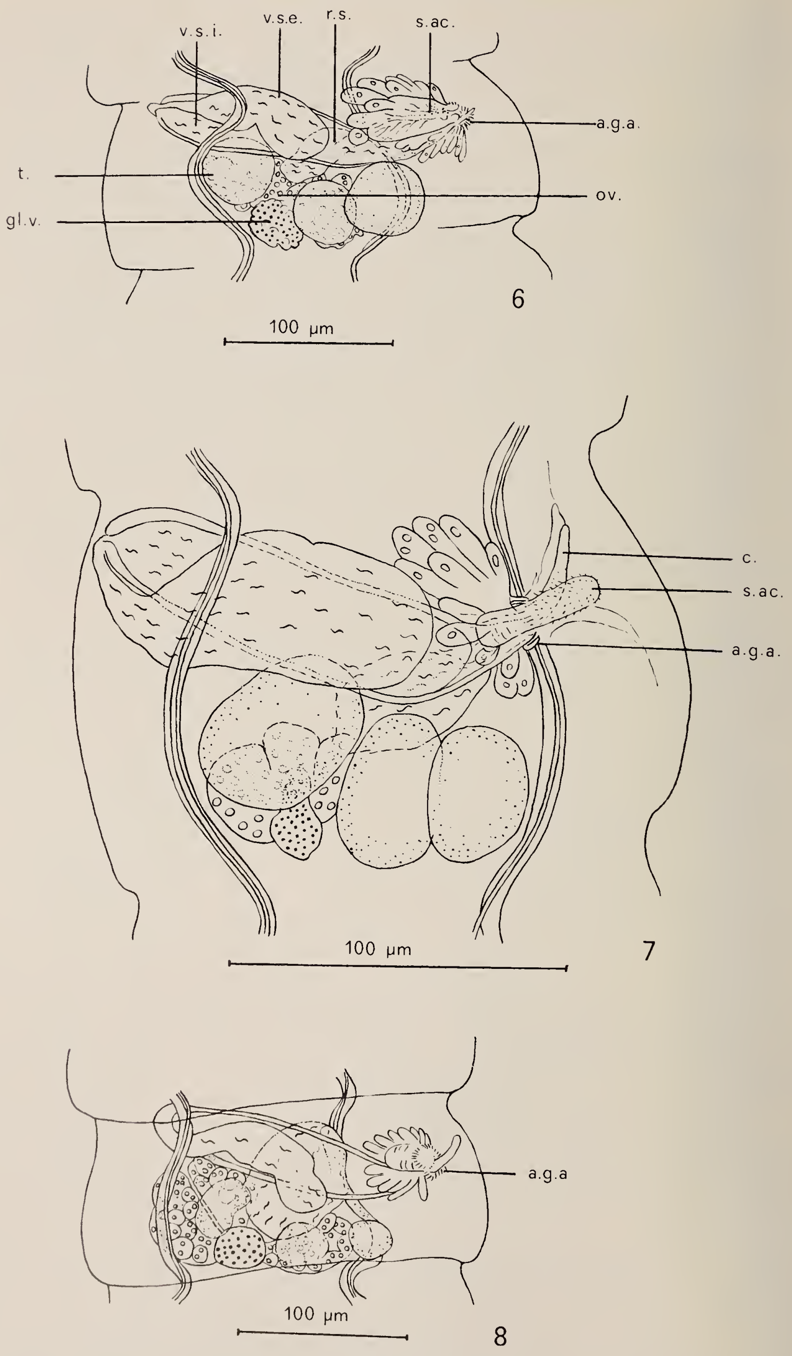

FIG. 6-8.

Echinocotyle multiglandularis (Baczyńska, 1914): 6, hermaphroditic proglottid, specimen "A"; 7, hermaphroditic proglottid from *L. fuscus*, cat. No. 111/54; 8, hermaphroditic proglottid with disappearing testes and three distinctly visible lobes of the ovary, from *L. fuscus*, cat. No. 111/63.

the cirrus). The accessory sac is surrounded from anterior, posterior and dorsal side by relatively large glands (fig. 7, 8). This sac remains with the cirrus pouch in uterine proglottids too.

The female genital system.—The primordia of the female glands appear in the 66th proglottid. The differentiation of these glands takes place in the 76th proglottid with well developed testes. The compact vitellarium is round or ovoid 40-70 μm in maximal diameter (91 μm) and lies dorsal to the ovary, usually between the middle and antiporal testes rarely overlaps the antiporal testis. The totally developed ovary consists of three lobes and measures 100-130 μm (150 μm) in width (BACZYŃSKA observed only two lobes of the ovary). The middle lobe of the ovary lies close to the antiporal lobe and is seen clearly only in some proglottids (e.g. fig. 8). In more distal proglottids it is difficult to distinguish the disappearing ovary from the growing uterus. The seminal receptacle (not observed by BACZYNSKA) lies ventral to the cirrus pouch (fig. 6-8). We have not observed the intermediate and copulatory part of the vagina in the complete preparations. The thin-walled copulatory part of the vagina, surrounded by muscles, can be seen in cross section (fig. 12). It lies ventral to the cirrus pouch and opens at the bottom of the genital atrium. The sacciform uterus contains more eggs in its antiporal part. No oncospheres has been found. According to BACZYŃSKA (1914) they are 10-11 μm in diameter.

There are numerous external muscle bundels. The internal ones consist on each side i.e. on the dorsal and ventral sides of the body of four pairs of bundles well visible on longitudinal sections (fig. 13).

Excretory system.—Two dorsal longitudinal excretory canals about 2 μm thick and two ventral ones about 6 μm thick (7,8 μm) run in an undulate way. Transversal excretory canals have not been observed.

Until recently, it has been supposed hat the distribution of *E. multiglandularis* was limited to Africa. The finding of these species in the Estonian Republic of the Soviet Union in *Larus fuscus* by JÖGIS (1962-1963) cited by SPASSKAYA (1966) has to be confirmed. because of the mistakes made by BACZYŃSKA (1914) in the first description and not enough detailed description made by JÖGIS (1962-1963).

Abbreviations : a.g.a.—armature of the genital atrium; b.c.—bursa cirri; c.—cirrus; c.e.l.d.—canalis excretorius longitudinalis dorsalis; c.e.l.v.—canalis excretorius longitudinalis ventralis; f.g.g.p.—female genital glands primordium; gl. at.—glandulae atriales; gl. v.—glandula vitellina; m.l.i.—musculi longitudinales interni; m.v.—musculi partis copulatricis vaginae; ov.—ovarium; p.c.v.—pars copulatrix vaginae; r.s.—receptaculum seminis; s.ac.—sacculus accessorius; t.—testis; u.—uterus; v.s.e.—vesicula seminalis externa; v.s.i—vesicula seminalis interna.

ACKNOWLEDGEMENTS

The senior author wishes to thank Prof. André Aeschlimann, Director of the Zoological Institute, University of Neuchâtel, Switzerland, for the grant of the University which made this study possible and Dr. William Kaufman for his kind help.

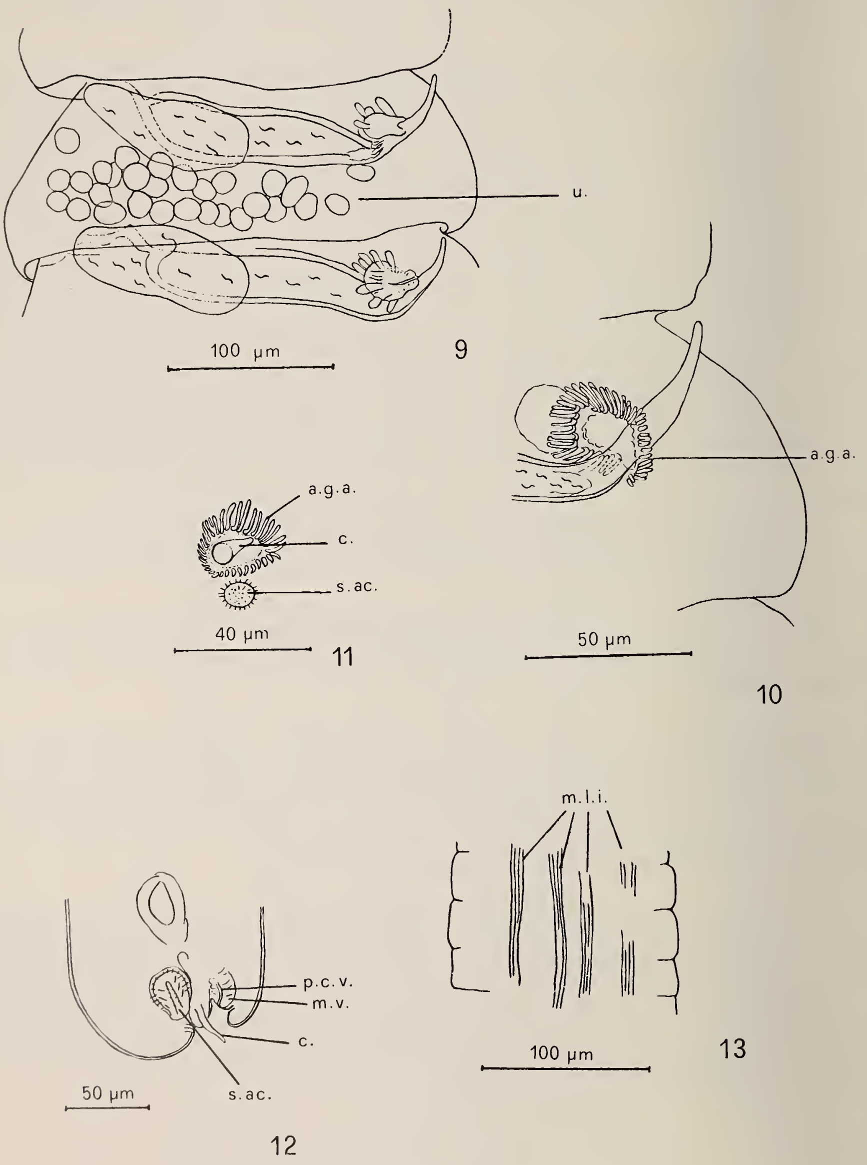

Fig. 9-13.

Echinocotyle multiglandularis (Baczyńska, 1914): 9, young uterine proglottid, specimen "A"; 10, genital atrium with armature around the genital pores, dorsal view, specimen "A"; 11, genital atrium, lateral view, from *L. cirrocephalus*, cat. No. 116/6; 12, cross section through the genital atrium from *L. cirrocephalus*, cat. No. 116/8; 13, longitudinal section through longitudinal inner muscle bundles, from *L. cirrocephalus*, cat. No. 116/7.

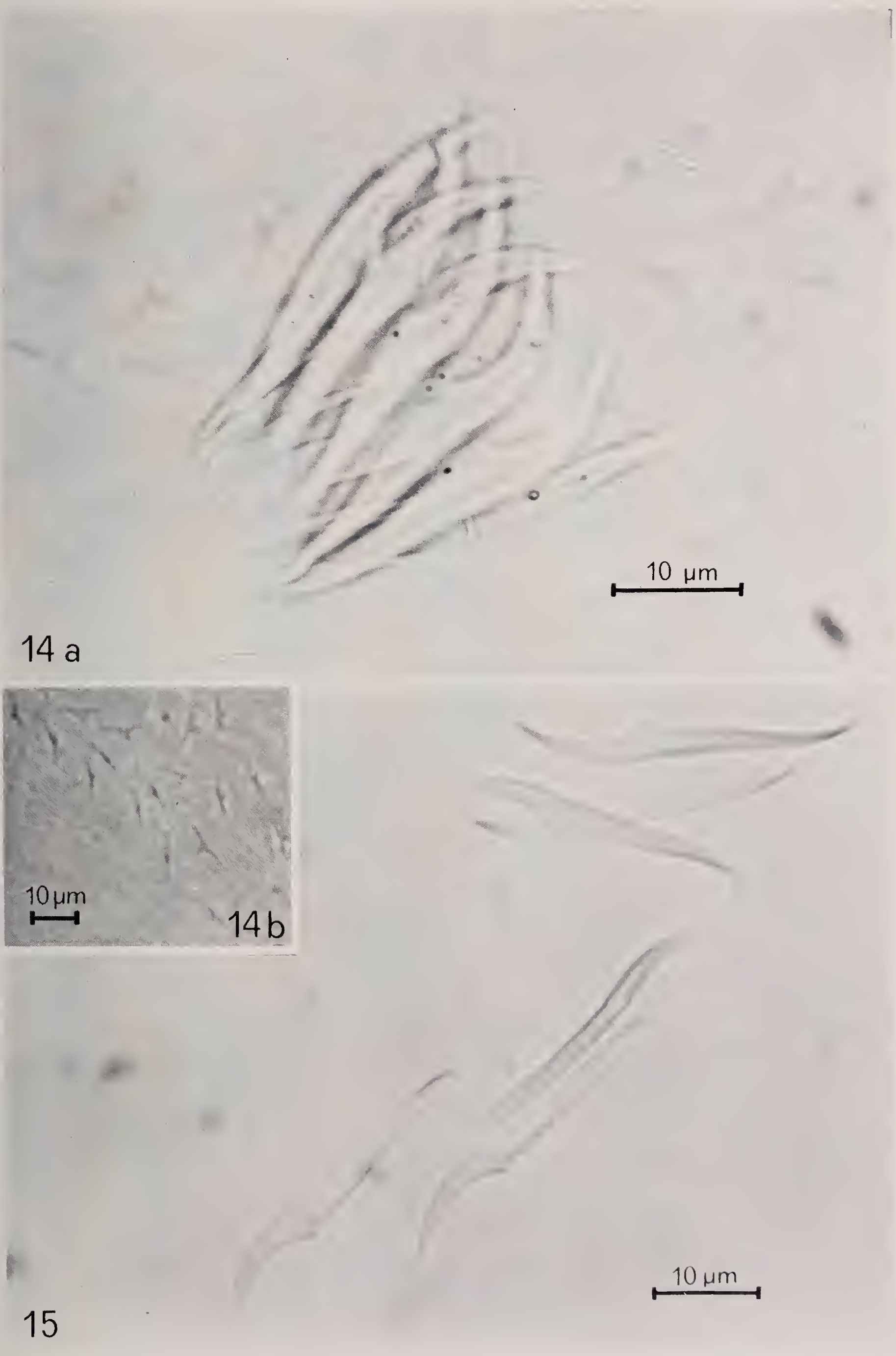

FIG. 14-15.

Echinocotyle multiglandularis (Baczyńska, 1914): 14, scolex with rostellar (a) and sucker (b) hooks from *L. canus*, cat. No. 111/53; 15, rostellar hooks from *L. cirrocephalus*, cat. No. 116/9.